

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (Currently Amended) A method of forming a rotor comprising the steps of:

(i) providing a rotor element formed from steel; and

(ii) welding the rotor element, using a welding process employing a weld metal which comprises: from 0.04 to 0.1% carbon, from 0 to 0.5% silicon, from 0.1 to 0.6% manganese, from 0 to 0.01% sulphur, from 0 to 0.03% phosphorous, from 1.9 to 2.6% chromium, from 0.05 to 0.3% molybdenum, from 0.2 to 0.3% vanadium, from 0.02 to 0.08% niobium, from 1.45 to 2.1% tungsten, from 0 to 0.03% nitrogen, from 0.0005 to 0.006% boron and from 0 to 0.03% aluminium, remainder iron.

Claim 2 (Previously Presented) The method according to Claim 1, wherein the weld metal comprises at least 0.06% carbon.

Claim 3 (Previously Presented) The method according to Claim 1, wherein the weld metal comprises at least 0.3% manganese.

Claim 4 (Previously Presented) The method according to Claim 1, wherein the weld metal comprises 0.005 % or less sulphur.

Claim 5 (Previously Presented) The method according to Claim 1, wherein the weld metal comprises at least 1.7% tungsten.

Claim 6 (Previously Presented) The method according to Claim 1, wherein the weld metal comprises at least 0.04 % niobium.

Claim 7 (Previously Presented) The method according to Claim 1, wherein the weld metal comprises 0.02 % or less nitrogen.

Claim 8 (Previously Presented) The method according to Claim 1, wherein the weld metal further comprises 0.5% or less nickel.

Claim 9 (Previously Presented) The method according to Claim 1, wherein the weld metal comprises 0.075% carbon, 0.2% silicon, 0.5% manganese, 0.001% sulphur, 0.017% phosphorous, 2.2% chromium, 0.1% molybdenum, 0.1% nickel, 0.23% vanadium, 0.06% niobium, 0.05% titanium, 1.9% tungsten, 0.009% nitrogen, 0.003% boron and 0.02% aluminium.

Claim 10 (Previously Presented) The method according to Claim 1, wherein the rotor element is formed from steel which comprises from 0.15 to 0.35% carbon, from 0 to 0.3% silicon, from 0.2 to 1% manganese, from 0 to 0.03% sulphur, from 0 to 0.03% phosphorous, from 0.3 to 1% nickel, from 0.7 to 1.50% chromium, from 0.5 to 1.2% molybdenum, and from 0.2 to 0.4% vanadium.

Claim 11 (Previously Presented) The method according to Claim 10, wherein the rotor element is formed from steel comprising 0.25% carbon, 0.23% silicon, 0.64% manganese, 0.005% sulphur, 0.01% phosphorous, 0.56% nickel, 0.8% chromium, 0.78% molybdenum, and 0.35% vanadium.

Claim 12 (Previously Presented) The method according to Claim 1, comprising providing a second rotor element having a composition substantially the same as the rotor element and welding the second rotor element to the rotor element using the weld metal.

Claim 13 (Previously Presented) The method according to Claim 1, wherein the welding process is a submerged-arc welding process.

Claim 14 (Previously Presented) The method according to Claim 1, wherein the method comprises a step of machining a rotor component to form the rotor element.

Claim 15 (Previously Presented) The method according to Claim 1, comprising a step of machining the weld metal after the step of welding.

Claim 16 (Currently Amended) A rotor for a turbine, comprising a steel rotor element and weld metal welded to the rotor element, wherein the weld metal comprises: from 0.04 to 0.1% carbon, from 0 to 0.5% silicon, from 0.1 to 0.6% manganese, from 0 to 0.01% sulphur, from 0 to 0.03% phosphorous, from 1.9 to 2.6% chromium, from 0.05 to 0.3% molybdenum, from 0.2 to 0.3% vanadium, from 0.02 to 0.08% niobium, from 1.45 to 2.1% tungsten, from 0 to 0.03% nitrogen, from 0.0005 to 0.006% boron and from 0 to 0.03% aluminium, remainder iron.

Claim 17 (Previously Presented) The rotor according to Claim 16, wherein the weld metal comprises at least 0.06% carbon.

Claim 18 (Previously Presented) The rotor according to Claim 16, wherein the weld metal comprises at least 0.3% manganese.

Claim 19 (Previously Presented) The rotor according to Claim 16, wherein the weld metal comprises 0.005% or less sulphur.

Claim 20 (Previously Presented) The rotor according to Claim 16, wherein the weld metal comprises at least 1.7% tungsten.

Claim 21 (Previously Presented) The rotor according to Claim 16, wherein the weld metal comprises at least 0.04% niobium.

Claim 22 (Previously Presented) A rotor according to Claim 16, wherein the weld metal comprises 0.02% or less nitrogen.

Claim 23 (Previously Presented) A rotor according to Claim 16, wherein the weld metal further comprises 0.5% or less nickel.

Claim 24 (Previously Presented) A rotor according to Claim 16, wherein the weld metal comprises 0.075% carbon, 0.2% silicon, 0.5% manganese, 0.001% sulphur, 0.017% phosphorous, 2.2% chromium, 0.1% molybdenum, 0.1% nickel, 0.23% vanadium, 0.06% niobium, 0.05% titanium, 1.9% tungsten, 0.009% nitrogen, 0.003% boron and 0.02% aluminium.

Claim 25 (Previously Presented) A rotor according to Claim 16, wherein the rotor element is formed from steel which comprises from 0.15 to 0.35% carbon, from 0 to 0.3% silicon, from 0.2 to 1% manganese, from 0 to 0.03% sulphur, from 0 to 0.03%

phosphorous, from 0.3 to 1% nickel, from 0.7 to 1.50% chromium, from 0.5 to 1.2 % molybdenum, and from 0.2 to 0.4% vanadium.

Claim 26 (Previously Presented) A rotor according to Claim 25, wherein the rotor element is formed from steel comprising 0.25% carbon, 0.23% silicon, 0.64% manganese, 0.005% sulphur, 0.01% phosphorous, 0.56% nickel, 0.8% chromium, 0.78% molybdenum, and 0.35% vanadium.

Claim 27 (Previously Presented) The method according to Claim 12, wherein welding the second rotor element to the rotor element is a submerged-arc welding process.

Claim 28 (Previously Presented) The method according to Claim 12, wherein the method comprises a step of machining a rotor component to form the second rotor element.

Claim 29 (Previously Presented) The method according to Claim 12, comprising a step of machining the weld metal after the step of welding the second rotor element to the rotor element.

Claim 30 (Currently Amended) A method of forming a rotor comprising the steps of:

removing at least a portion of a creep-life expired region of a first rotor element, the first rotor element formed from a steel;

replacing the removed portion of the first rotor element by welding the rotor element with a weld metal or by welding a second rotor element to the first rotor element with the weld metal, the weld metal comprising 0.04 to 0.1% carbon, 0 to 0.5% silicon, 0.1 to 0.6% manganese, 0 to 0.01% sulphur, 0 to 0.03% phosphorous, 1.9 to 2.6% chromium, 0.05 to 0.3% molybdenum, 0.2 to 0.3% vanadium, 0.02 to 0.08% niobium, 1.45 to 2.1% tungsten, 0 to 0.03% nitrogen, 0.0005 to 0.006% boron, and 0 to 0.03% aluminium, remainder iron;

heat treating the rotor at a temperature range of 650°C to 750°C; and
machining the rotor to remove at least a portion of the weld metal.